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## AEROBIOLOGICAL STUDY OVER THE GROUNDNUT FIELD OF MANWATH, DIST. PARBHANI (M.S.)


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*Synopsis*

# AEROBIOLOGICAL STUDY OVER THE GROUND NUT FIELD OF MANWATH, DIST. PARBHANI (M.S.)

## Introduction :

Aerobiology is a scientific and multidisciplinary approach focused on the transport of organisms and biologically significant material.(Edmonds).

It is concerned with the source of an organism or material, their release in the atmosphere, dispersion, deposition and impaction on living being with the inception of International Biological Program (IBP) in 1964,the term has been further extended to include investigation of air borne materials of biological significance.

Aerobiology work has been extensively carried out by earlier workers Louis Pasteur(1961),Ehren (1872),Miquel (1883),Frankland (1886) to study the microbial components of the atmosphere.

Saito (1904 & 1922) in Japan,Buller and low (1991) in Canada,Meieretal(1933) of United State,Stapano (1935) of U.S.S.R. Extensive work on airspora have been carried out by Gregory (1945 onwards )in U.K.,Hyde and William (19490,Hirst (1952),Meredith (1961) in West Indies, Sreeramulu and co workers (1958 onwards) at Waltair,Tilak and co-workers at Aurangabad, Subba reddy and his co-workers (1970 onwards) at waltair in India.The workers obtained a huge data on general aeromycology and worked out the composition and components of air spora over different fields.

The present study deals with the “Aerobilogical study over the groundnut field of Manwat Dist.Parbhani (M.S.) special emphasis on the fungal airspora and foliar diseases of the crop.

To study the airborne nature of the micro organism various methods are proposed to trap the fungal spores and other biologically significant materials. The Aerobiological experiments would be conducted in order to understand the airspora components over the special emphasis is fungi, its concentration in the air, their role in inciting the diseases over the groundnut field.

Groundnut(Arachis hypogea) is the most important commercial crop of India,which is grown widely all over the country. The peanut is a native of Brazil where it grows as a wild, It was introduce into India in the 16th century. Since the groun nut has been grown very large scale in India as well as world. It is cultivated in various countries like Africa, China, Brazil,

Indonesia, Austrelia etc. Brazil produce highest amount of ground nut production in the world. Ground nut in India cultivated as soil seed crop for kharip season as well as in irrigated area. Ground nut varieties shoes different yields.

Different fungi are pathogenic of ground nut in different parts of the world. Some of the diseases are major importance because they are wide spread and cause severe losses in yield. The most important disease are tikka disease of ground nut (Cercospora personata, Cercospora arachidicola) Rust of ground nut (Puccinia arachidis ) etc.

Sampling would be done to find out the spore concentration in the air in relation to the metrological conditions, growth stages of crop and incidence of disease over ground nut field for evolving an efficient forecasting system.

**Methodology to be adopted**

To conduct the aerobiological experiment Tilak air sampler would be used for monitoring the microbial components over ground nut field, which was devised by Prof.S.T.Tilak.Air sampling would be done by operating continuously air sampler in the ground nut field. Air sampler runs on electric power supply (AC 230V.). Inside the sampler a rotating drum is present on which a cellotape is sticked and coated with a thin layer of petroleum jelly, which helps to entrap the bio-particles from the air. The drum takes a single rotation in eight days. So it gives eight days data of various components. Then this cello tape is cut in 16 equal parts for day and night records and these parts are mount on a glass slide with glycerin jelly. Scanning of the slides will be done by dividing this tape into six equal parts, each part representing two hours trace area.

Such Aerobiological experiment will be conducted for two years to find out the seasonal variation in aerospora in relation on metrological factors, disease

incidence and growth stages of the crop. The results obtained will be help in formulating an efficient disease forecasting system over ground nut fields. The first year (Period A) counting 2016 to 2017 and the second one period (Period B) 2017 to 2018.

**Objectives**

1. To identify concentration of airborne pathogens.
2. Increasing awareness of aero spora for disease incidence.
3. The data will provide seasonal Aerospora calendar for the ground nut growing farmers.

**Significance of the study**

1. This study helps to know the concentration of airborne pathogens.
2. The study will help to allergic problems due to micro flora of air borne pathogens.
3. Due to this investigation peoples working in the market, customers, sellers are beneficial by getting the data of fluctuation and dispersion of the air borne pathogens.

During the investigation work will carried out like collection or data, slide preparation and observation for two consecutive years. This study will co-related with the meteorological parameters like temperature, humidity, rainfall etc.

**Proposed work plan**

During the investigation work will be carried out like collection of data, slide preparation and observation for two consecutive years. This study will co-related with the meteorological parameters like temperature, humidity, rainfall etc.

Many airborne fungal spores are responsible for airborne diseases. Aero mycological studies will help to focus attention on such airborne sources. It involves determination and concentration of airborne fungal pathogens, its fluctuations and seasonal variations for specific time and period. Data obtained from such study will help to obtain calendar for subsequent diseases avoidance and managements.

Year wise plan of Research :

Part I : Aerobiological investigation over ground nut fields for two years.

Part II :Observation of slides and writing works.

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